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# The Probe, Issue 135 – August 1993

The Predator NADCA ISSUE 135 AUGUST 1993

# A Primer to Ingredients Used for Coyote Lures & Baits

*Sherm Blom, USDA, APHIS, Animal Damage Control, Pocatello Supply Depot, 238 East Dillon, Pocatello, ID 83201*

Lures, scents, and baits are all defined in different ways by different people but they are all odor attractants. Animals are attracted to them by smell. Some of the same compounds are found in all of these products, regardless of type. These compounds are the key attractants to coyotes and other animals. Lures and scents are often categorized into 4 main groups:

- *NATURAL products, including glands and urine.*
- *FOOD products, including many items.*
- *PASSION OR MATRIX products, including "In-Heat" or estrous urine, asafetida, and lovage.*
- *CURIOSITY products, including any item out of a coyote's natural element.*

Baits are food items considered to be palatable to coyotes and include meats, fish cheeses, eggs, etc. Coyotes are still attracted to them by their odors.

This primer to ingredients used for coyote lures and baits is meant to provide the coyote trapper with a basic understanding of why certain ingredients are used in lures and baits. If you don't trap coyotes, it may be helpful to understand the science and art of lure and bait-making for other species.

***Definitions of some products used in lure and bait making***

1) PRESERVATIVES can be used to preserve glands, meat, fish, etc. at any desired stage. They will not preserve lures and baits for long periods of time, but work well for shorter periods.

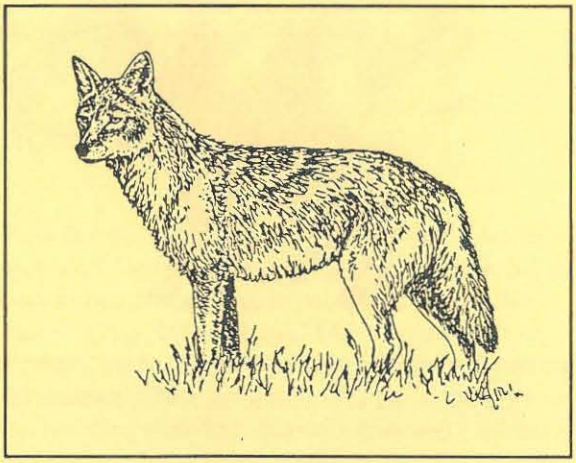
A) SODIUM BENZOATE is a very effective and probably the most widely used preservative. One to 2 teaspoons per pint of lure, glands, etc., or 4 to 5 tablespoons per gallon is plenty.

B) METHYL PARABEN is used like sodium benzoate.

C) SALT, BORAX, or CORROSIVE SUBLIMATE are used in some of the old time formulas but now replaced with the above.

D) GLYCERIN (GLYCEROL) is an alcohol widely used to preserve lures and baits. It also serves as an anti-freeze in cold weather and to retard evaporation in hot weather. Use at the rate of 25% or 4 ounces per pint, 1 quart per gallon, etc.

E) PROPYLENE GLYCOL has similar qualities as glycerin and is used the same way. It is a little better to use with blood and liver products since it retards mold better than glycerin. Some use glycerin and propylene glycol mixed half and half.



2) TINCTURES are a medium to dilute down a concentrated product or to extract odorous substances from products like beaver castors, glands, etc. Vodka or denatured ethyl alcohol (DEA) are good to use and both are readily available. Tinctures are usually made at the rate of 1 to 10% of the product to be tinctured to the alcohol. Individual ingredients and quantities will be discussed later.

3) FIXATIVES are used to retard evaporation and allow ingredients of different evaporation

*Continued on page 4*

# CALENDAR OF UPCOMING EVENTS

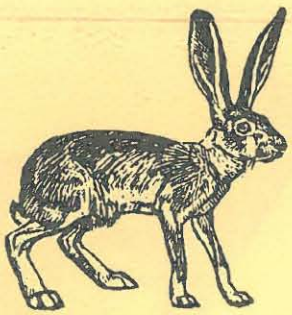
**September 12-18, 1993: F.T.A. Professional Trappers College, Limberlost Camp, LaGrange, IN.** Contact: Charles Park, 410 S. Poplar, LaGrange, IN 46761.

**September 19-25, 1993: First International Wildlife Management Congress, Hotel Cariari, San Jose, Costa Rica.** For further information, contact IWMC Secretariat Director, The Wildlife Society, 5410 Grosvenor Lane, Bethesda, MD 20814, phone (301) 897-9770.

**October 3-6, 1993: 6th Eastern Wildlife Damage Control Conference, Ramada Inn, Asheville, NC.** Conference theme: "Wildlife Damage Management in the 90's: Balancing the Needs of Society." For more information, contact: Ann Coughlin, 6th Eastern WDM Conf., No. Carolina State Univ., College of Forest Resources, Box 8001, Raleigh, NC 27695-8001, (919) 515-3184.

**October 3-8, 1993: First International Congress of Vector Ecology, Hanalei Hotel, San Diego, California.** Sponsored by the Society for Vector Ecology. For more information, contact: Society for Vector Ecology, P.O. Box 87, Santa Ana, CA 92702, (714) 971-2421, FAX (714) 971-3940.

**October 26-28, 1993: Symposium: Contraception in Wildlife Management, Sheraton Hotel, Denver Tech Center, Denver, Colorado.** For more information: Diana L. Dwyer, USDA-APHIS Denver Wildl. Res. Ctr., P.O. Box 25266, Denver, CO 80225-0266, (303) 236-7874.



*The Probe* is the newsletter of the National Animal Damage Control Association, published 11 times per year.

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Your contributions to *The Probe* are welcome. Please send news clippings, new techniques, publications, and meeting notices to *The Probe*, c/o Hopland Research & Extension Center, 4070 University Road, Hopland, CA 95449. If you prefer to FAX material, our FAX number is (707) 744-1040. The deadline for submitting material is the 15th of each month. Opinions expressed in this newsletter are not necessarily those of NADCA.

**November 4-5, 1993: North America Research Workshop on the Ecology and Management of Cowbirds, Austin, Texas.** For more information please contact Terry Cook, The Nature Conservancy, P.O. Box 164255, Austin, Texas 78716.

**December 11-15, 1993: 55th Midwest Fish & Wildlife Conference, St. Louis, Missouri.** The theme is *New Agendas in Fish and Wildlife Management: Approaching the Next Millenium.* Features include an *Urban Deer Management Symposium.* For more information, contact: Wayne Porath, 1110 S. College Ave., Columbia, MO 65201, (314) 882-9880.

**December, 1993: 2nd International Symposium on Wild Boar (*Sus scrofa*) And On Order Suiformes, Torino, Italy.** For more information, contact: Secretariat, 2nd International Symposium on Wild Boar and on order Suiformes, c/o Prof. P. Durio, Dipartimento Produzioni Animali, Epidemiologia ed Ecologia, Via Nizza 52, 10126 Torino (Italy), Telephone 39.11 . 6503734 - FAX 39.11 . 655455.

**February 21-23, 1994: 1st Eastern Nuisance Wildlife Control Operators Short Course, Lexington, Kentucky.** For more information, contact Tom Barnes, Extension Wildlife Specialist, Department of Forestry, University of Kentucky, Lexington, KY 40546-0073.

## Outbreak of Hantavirus Infection Still Under Investigation

An outbreak of illness associated with hantavirus infection continues to be investigated by state health departments in New Mexico, Arizona, Colorado, and Utah; the Indian Health Service; and Centers for Disease Control and Prevention (CDC), with the assistance of the Navajo Nation Division of Health.

According to a July 2 report from the CDC, Atlanta, Georgia, laboratory evidence of acute hantavirus infection had been confirmed in 15 patients who had onsets of the illness from January 1 through June 30. Eleven patients died. Similar illnesses in an additional 23 persons, 10 of whom died, are being investigated for possible hantavirus infection.

Since June 6, a total of 668 rodents have been trapped in or around houses in 14 rural sites. *Peromyscus maniculatus* (deer mouse) comprised 63% (range: 36%-88%) of all rodents trapped and 85% of those trapped in homes. Of the first 283 rodents tested, hantavirus antibodies were detected in 23%.

# ADC News, Tips, Ideas, Publications...

## Publications Available

*DWRC RESEARCH UPDATE, Spring 1993.* This 11-page leaflet is filled with new ideas and research findings by the Denver Wildlife Research Center. For your copy, write USDA, Denver Wildlife Research Center, P.O. Box 25266, Bldg. 16 DFC, Denver, CO 80225-02666 or call (303) 236-7874 or FAX (303) 236-7863.

The USDA Animal Damage Control Office in New York has recently revised two of its popular leaflets. The revisions were made by Brian Archuleta, Wildlife Biologist and NADCA Member, in the Albany Office. The leaflets are:

*Bird Control Devices—Sources of Supply*
*Mammal Control Devices—Sources of Supply*

The two leaflets list all known available manufacturers of various Bird and Mammal Control Devices and groups them into various categories.

Copies are free for the asking by writing: USDA-Animal Damage Control, P.O. Box 97, Albany, New York, NY 12201-0097.

## New Live Trap Address Correction...

The New Live Trap offered by Mitlyng Development is available from Chuck and Beckie Mitlyng, Mitlyng Development, P.O. Box 43, Darwin, Minnesota 55324. The full address was inadvertently omitted from an earlier issue of **The PROBE**.

### In Memoriam

We are all saddened to learn of the death of Milt Caroline, Thursday, June 17. Milt was the State Director for USDA/APHIS/ADC in Texas for many years. We understand that there will not be a service.

Those of you who wish to send a card to Betty Caroline can do so at the following address:

118 Highview
San Antonio, Texas 78228

*The editors of* **The PROBE** *thank contributors to this issue: Sherm Blom, Thomas E. Nicholls, Mike Fall, James E. Forbes, and Wes Jones. Send your contributions to* **The PROBE**, *4070 University Road, Hopland, CA 95449.*

## Fur Institute of Canada Receives Renewed Government Support

The Fur Institute of Canada's trap research and development program has received the renewed support of the Canadian government, it was announced in late May in Ottawa.

With a new 5-year plan, $12 million has been budgeted by Indian Affairs and Northern Development and Environment Canada to pursue programs in trapper education, trap research and development, and international trapping standards. This investment clearly illustrates Canada's commitment to the fur trade by enabling Canadian producers to adjust to market challenges and ensure consumers that wild furbearer management practices are of the highest professional standards.

"The new funds will allow us to continue our extensive Research and Development program, the majority of which occurs at our research compound in Vegreville, Alberta," noted Trap Research and Development Committee chairman, Harvey Jessup. "Over the past 7 years as considerable research has provided conclusive results in furbearer trapping technology resulting in more humane and efficient traps while contributing critical information to Canadian furbearer management programs. As an added benefit, the program provides important insight into the biology of certain furbearers."

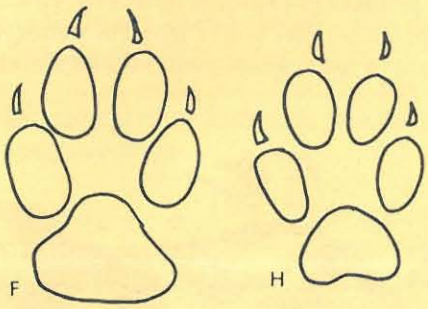
The Canadian fur trade has faced considerable conomic difficulties over the past 5 years with the far-reaching effects of the recession combined with a global restructuring in the manufacture and distribution of fur products. As an additional challenge, fur producing countries wishing to maintain their trade with the European Community (75% of Canadian wild fur exports) must conform with a new EC trade regulation no later than January 1, 1996.

# Ingredients Used for Coyote Lures & Baits continued...

rates to evaporate off at more similar rates. Fixatives generally have strong odors, so they are used in small quantities as drops per pint of oils, small amounts of powders, or 3 to 5% in tinctured form. This will also be discussed in detail later.

*A review of commonly used raw materials for lures and bait making*

1) URINE is used with or without preservatives. Ammonia gas is formed when urine starts to decompose and that is what is smelled when a bottle of older, strong urine is opened. Sodium benzoate added to urine at the rate of 2 tablespoons per gallon will help preserve it and




**Coyote**

reduce the formation of ammonia. Glycerin also will help preserve urine. In addition, glycerin acts as an antifreeze in cold weather and retards evaporation during hot weather. One pint of glycerin per gallon of urine is recommended (don't forget - 1 pint of urine will have to be withdrawn from a full gallon to accommodate the glycerin). Both glycerin and sodium benzoate can be used together to preserve urine. Urine can be frozen and thawed as needed with no negative effects since it is mostly water. Urine that is refrigerated or kept in a cool place will remain fresher longer than urine that is not. "In-Heat" or estrous urine is often sold by dealers. This urine is no better than regular urine since some of the important components of estrous urine are so volatile they cannot be retained for more than a short time (minutes for some). The extra $10 per gallon charged for it is a waste of money.

2) GLANDS are a common lure or bait ingredient. A variety of glands and methods for preparation of gland lure are used. The most common glands collected are anal, ear, leg, stomach, anus, rectum, bladder, gall bladder, liver, and foot pads. Gland lure is either made from rotten or fresh preserved glands. Urine is sometimes added to the gland mixture. Methods of preparation will be discussed later.

3) FISH & FISH OIL or JUICE from many types of fish are often used, according to locality and availability. Fresh or rotted fish is a matter of personal preference. Fresh or sun-rendered (rotten) fish oils or juices can be made or purchased.

4) OTHER JUICES AND OILS, such as juices and oils from rotted snakes, rodents, or meats are often used instead of fish products. Seal oil was commonly used at one time, but is now very scarce.

5) MEATS are used in one of these forms:
- A) FRESH or PRESERVED meats are best for summertime use, and give off the least odor.
- B) TAINTED meats give off the most odor. The meat is still red but is starting to turn brown, becoming pasty and juicy.
- C) ROTTEN meats remain this way indefinitely once this stage is reached.

6) CHEESES such as limburger and blue cheese are most often used. Cheese is a good alternative to meat or fish as a lure base.

7) ROTTEN EGGS are another good alternative to meat bases.

8) BLOOD, HEART, & LIVER are used fresh, tainted, or rotten. Fresh or preserved meats are valuable during the summer months for M-44s.

9) TALLOW, LARD, FATS, LANOLIN, etc., are good additives and binders for making ingredients blend and stick together with bases. They also work as carriers for chemical lures.

10) BRAIN, as nerve tissue, is a good alternative to meat or fish bases. Brain is usually rotted-down. It makes a good paste base for M-44 lures.

11) POWDERS & MEALS such as egg, fish, bone, blood, liver, hoof & horn, feather, etc., are often used to thicken lures. Their milder odors are sometimes better for M-44 lures to reduce the rub-rolling response by coyotes.

*Continued on page 5*

*Lure and bait ingredients and additives*

1) MUSKRAT GLANDS are the 2 small glands found on each side of the vent on male muskrats during the spring breeding season. The MUSK in the glands contains a good portion of acids that are attractive to coyotes. Use fresh ground and preserved or in tincture form (2 ounces in 14 ounces of vodka or DEA).

2) BEAVER CASTORS are the 2 large flat glands found on each side of the vent on both male and female beavers. Castors contain a large proportion of phenols which are attractive to coyotes and also serve to fix and preserve other ingredients they come into contact with. Castor is used in 3 forms: fresh ground and preserved, dried and rasped to a powder, or tinctured (castoreum) at the rate of 1 ounce in 15 ounces of vodka or DEA.

3) BEAVER OIL SACS are the 2 long, oval-shaped, whitish glands found next to the castors. They are generally ground up or the oil is squeezed out of them. They are sometimes mixed with the castors.

4) MINK GLANDS & MUSK contain powerful sulfides. They are also ground fresh and preserved or tinctured (2 ounces in 14 ounces of vodka or DEA).

5) GLANDS & URINE FROM OTHER CANIDS OR FELIDS, such as fox, dog, badger, bobcat, and feral cats, serve as curiosity agents, bringing out dominance behavior in coyotes. Many of the same compounds are found in all types of urines.

6) ASAFETIDA is a powerful ingredient due to its sulfides. It is used in gum, powder, or tinctured (2 ounces in 14 ounces of vodka or DEA) forms.

7) GARLIC & ONION also contain sulfides and are sometimes used in lures and baits. Their powders and salts can be purchased at grocery stores, while the oils are available from specialty shops.

8) VALERIAN ROOT is used as a powder, oil, or extract, or as a salt form in zinc valerate. All of these forms contain valeric acid which is attractive to coyotes.

9) RUE OIL is seldom used but a good ingredient. It contains methyl ketones which give it a "cheesy" odor. Use sparingly at 3 to 5 drops per pint of lure since it overpowers other odors.

10) SKUNK MUSK is probably one of the most powerful sulfide odors. Use sparingly at 3 to 5 drops per pint of lure, or use 6 to 10 drops per pint to dominate the lure. Spotted skunk (civet cat) musk can also be used and has a slightly different odor.

11) ORRIS ROOT is used in powder, oil, or tinctured (1 ounce in 15 ounces of vodka or DEA) forms. It is a very good fixative and contains some acids that are attractive to coyotes. As a fixative, use 1/2 teaspoon of the oil/tincture or 1/8 teaspoon of the powder per pint of lure.

12) OAKMOSS is used as a resin or in tinctured (one teaspoon in 16 ounces of vodka or DEA) forms. A very powerful fixative, you want to use it sparingly at 3 to 5 drops of resin or 1/4 teaspoon of tincture per pint of lure.

13) HENYL ACETIC ACID is a chemical acid in crystal form with a strong, sweet odor like honey. It is very long-lasting and best used in tinctured form (1 teaspoon per pint of vodka or DEA) as a fixative. It is found in urines and scent glands of various animals.

14) ANISE OIL is widely used as an ingredient in all types of animal lures. Besides being attractive in itself, it acts as a carrier for other weaker-odored ingredients. Use only 3 to 5 drops per pint of lure since it overpowers other odors.

15) CILANTRO OIL actually is coriander leaf oil. Coriander leaves are used in cooking, especially Mexican foods. It contains a large proportion of aldehydes that are attractive to coyotes. Since it is very over-powering, use 2 to 4 drops of oil per pint of lure.

***Other ingredients that were formerly used but now are difficult or impossible to obtain and too expensive***

1) TONQUIN MUSK is musk from the belly gland of the musk deer found in China and Russia. Since the musk deer is an endangered species, the genuine musk is almost impossible to obtain. Imitation musks today don't smell like the real musk and are formulated by the perfume industry for fixatives in perfumes and to add a "musk-like" odor to them. These imitation musks have some curiosity value in lures but their main function is as a fixative. Other "musks" offered for sale include canton, muscaro, white musk (musk xylene), musk

*Continued on page 6*

# Ingredients Used for Coyote Lures & Baits continued...

ambrette, musk keytone, etc., which are all chemical musks or combinations of other ingredients to simulate a musk odor and provide fixative qualities.

2) ABSYNNIAN or AFRICAN CIVET produce a paste that is scraped from the anal glands of captive animals. It is usually sold as tincture. It is still available but too expensive for most lure makers and trappers. It is often adulterated or diluted with artificial civet mixtures. Civet is used in the perfume industry as a fixative and to contribute animal odor to perfumes. Artificial civet mixtures that are sold smell somewhat like genuine civet but may lack the attractive qualities of the genuine civet.

3) RHODIUM OIL hasn't been available since the turn of the century. The oils sold today are compound oils that are a mixture of oils smelling similar to the original oil. The oil isn't too attractive by itself, but does act as a carrier for other odors in lures.

4) AMBERGRIS is a waxy secretion of the sperm whale that is found floating in oceans. It is a unique fixative and not very odorous. Synthetic ambergris is sold today that is a very good fixative and is used in lures where one wants to use a fixative without adding other odors to the lure.

*Other ingredients used in lure and bait making but of questionable value*

1) CUMIN OIL is a very powerful ingredient. Cumin powder is available in grocery stores and used for cooking. These products may act as curiosity agents or as carriers for other odors.

2) LOVAGE ROOT is used as a powder, oil, or tincture. It is often referred to as a "Passion" ingredient, but this function is very questionable.

*Chemicals and chemical lures*

All natural lure and bait products are composed of chemicals. Using chemicals and chemical lures is the same as using concentrated forms or parts of these natural products. Most proven conventional lures and baits or ingredients contain one or more classes of the following chemical groups which have been found to be key attractants in these natural products.

1) ACIDS are the "backbone" of lures and baits, and are found in almost every known lure, bait, and ingredient in various concentrations.

2) SULFIDES are the very powerful odors found in skunk musk, mink musk, asafetida, garlic, and onion, as well as in urines. They are very long-lasting and can be detected from long distances.

3) ALDEHYDES are found widely in many glands, urines, and food items, usually in small quantities. Cilantro oil contains mostly aldehydes. Aldehydes are unique in that they will oxidize upon extended exposure to air and will then turn to acids, which are still attractive to coyotes even though they change a little in odor.

4) PHENOLS are strong-odored chemicals that are found in a variety of ingredients including food items, beaver castor, smoked meats and fish, cheeses, urines, etc. They are usually found in small quantities but contribute a lot to a product's odor.

5) KEYTONES are a group of chemicals found in glands, urines, and food items. They are long-lasting in odor and act as fixatives in themselves.

The 5 chemical lures that are currently available include SFE (Synthetic Fermented Egg), VFA (Synthetic Monkey Pheromone), FAS (Fatty Acid Scent), TMAD (Trimethylammonium decanoate), and W-U lure.

*In the next issue of* The Probe, *Sherm Blom will discuss basic coyote lure and bait formuations.*

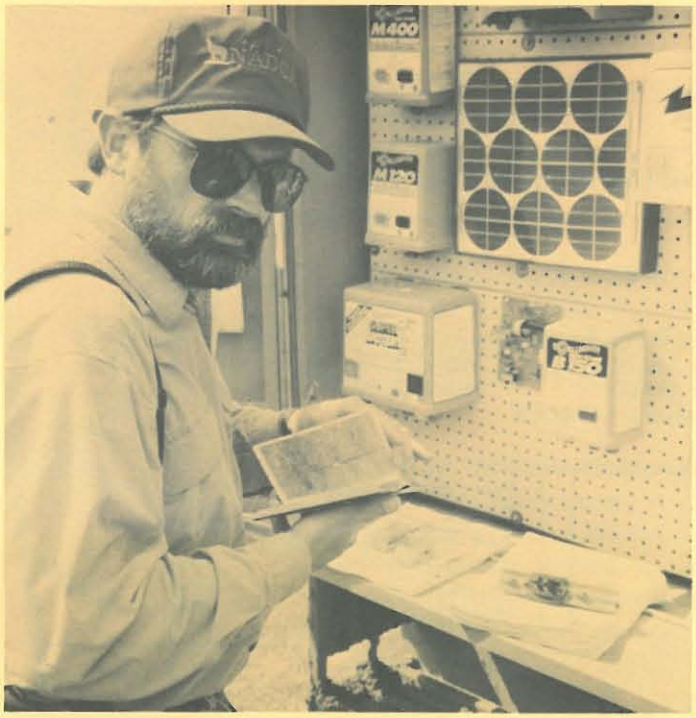
# NADCA Nominating Committee Needs Your Help

The NADCA Nomination Committee is preparing a slate of candidates for the election of 1994-95 Officers and Regional Directors. The following is a listing of the nominations received to date.

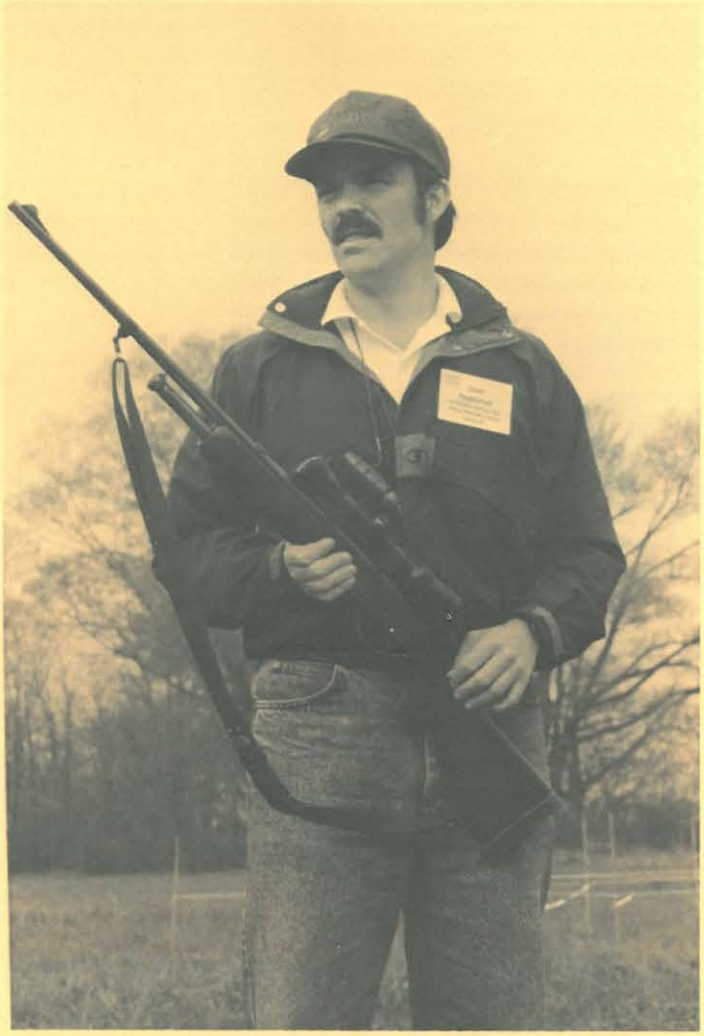
President: Jim Forbes
Gary Simmons
Vice-President: (East) Jim Miller
Vice-President: (West) Alan Foster
Secretary: Michael Hoy
Treasurer: Wes Jones
Region 1 Director: Mike Worthen
Region 2 Director: Fred Knowlton
Region 3 Director: William Rightmire
Region 4 Director: Rosemary Heinen
Region 5 Director: Scott Hygnstrom
Region 6 Director: No candidate
Region 7 Director: Laura Henze
Region 8 Director: Martin Lowny
Region 9 Director: Jim Armstrong

Consider volunteering or nominating a colleague to serve your organization. Nominations must be received by September 20, 1993 by Wes Jones, Route 1, Box 37, Shell Lake, WI 54871, (715) 468-2038.

*J. Grant Huggins, NADCA Nomination Committee*



# NADCA Members at 11th Great Plains Workshop



NADCA members attending the 11th Great Plains Wildlife Damage Control Workshop April 26-29 in Kansas City, Missouri, enjoyed a variety of informational presentations. Seen in the photograph above is NADCA Regional Director (Region 5) Scott Hyngstrom. He discussed deer population management for alleviating wildlife damage.

At left, NADCA member Eugene LeBoeuf inspects Gallagher electric fencing products.

Terrell P. Salmon
DANR-North Region
University of California
Davis, CA 95616-8575

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**Membership Application**

**NATIONAL ANIMAL DAMAGE CONTROL ASSOCIATION**

Mail to: Wes Jones, Treasurer, Route 1 Box 37, Shell Lake, WI 54871, Phone: (715) 468-2038

Name: _____ Phone: (____) _____ - _____ Home

Address: _____ Phone: (____) _____ - _____ Office

Additional Address Info: _____

City: _____ State: _____ ZIP _____

Dues: $_____ Donation: $_____ Total: $_____ Date: _____

| | | | | | |
|---|---|---|---|---|---|
| Membership Class: | Student $7.50 | Active $15.00 | Sponsor $30.00 | Patron $100 | (Circle one) |
| *(After 7/31/93)* | Student $10.00 | Active $20.00 | Sponsor $40.00 | Patron $100 | |

*Check or Money Order payable to NADCA*

Select one type of occupation or principal interest:

[ ] Agriculture
[ ] USDA - APHIS - ADC or SAT
[ ] USDA - Extension Service
[ ] Federal - not APHIS or Extension
[ ] Foreign
[ ] Nuisance Wildlife Control Operator
[ ] Other (describe) _____
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